



UNCLASSIFIED

Data Science at Scale School Speaker Series



Christoph Garth
TU Kaiserslautern

Scientific Visualization Research at the University of Kaiserslautern

Wednesday, October 1, 2014

10:30 - 11:15AM

TA-3, Bldg. 200, Room 116 (ACL Conference Room)

Abstract: The talk will outline research efforts towards facilitating visualization of large and complex datasets arising in the study of scientific and engineering problems, and will discuss in more detail recent research results in two areas.

First, I will describe a novel approach for applying topological analysis to multivariate scalar datasets. Adapting the concept of Pareto sets allows a characterization of joint external structures of several variables of a dataset, or alternatively the same variable across an ensemble of datasets. I will provide a brief comparison to other similar approaches, discuss computational aspects, and illustrate motivating application problems.

In the second part, I will discuss our recent efforts to achieve scalable visualization of large vector field datasets using so-called integration-based techniques, which are difficult to parallelize. Recent work has shown that work stealing as a general algorithmic approach in this context can yield very good performance and scalability.

Finally, I will conclude by discussing possible future directions and opportunities for collaboration.

Biography: Christoph Garth is an assistant professor at the Technical University of Kaiserslautern in the Computational Topology Group of the Department of Computer Science. He has published nearly 50 articles since 2004 in visualization computational topology, visual analysis, flow visualization, fluid flow and high-performance visualization.



For more information contact the technical host Curt Canada, cvc@lanl.gov, 665-7453.